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March 29, 2010

**Addendum No. 2 to
Invitation for Bid for
TOLL PLAZAS IMPROVEMENTS
CHANGEABLE MESSAGE SIGN (CMS) INSTALLATION PROJECT**
Dated March 15, 2010

Dear Contractor:

This letter is Addendum No. 2 to the Invitation for Bid for Construction of the TOLL PLAZAS IMPROVEMENTS - CHANGEABLE MESSAGE SIGN (CMS) INSTALLATION PROJECT, dated March 15, 2010, as amended on March 18th, 2010. Where text is revised, deleted text is shown in strike-through format; added text is italicized. The following changes are official changes to the IFB/Special Provisions Contract Documents. Bidders must acknowledge receipt of this Addendum No.2 on BID FORM #1 on page 33 of the IFB which is to be submitted by Bidder with their bid.

The IFB is revised as follows:

<u>Addendum Item</u>	<u>Reference</u>	<u>Change(s)</u>
1.	IFB, Section 5, Bid Form #1, Schedule of Quantities and Prices, Page 34	Schedule of Quantities and Prices is deleted in its entirety and replaced with the attached
2.	SC-13 Worker's Safety Provisions, Section 13.3, Page 56	Paragraph's 1 and 2: <i>The roofing material at the Richmond-San Rafael Toll Plaza is known to contain asbestos containing materials. In the event, If the Contractor encounters on the Site other material reasonably believed to be asbestos, polychlorinated biphenyl (PCB) or other Hazardous Substance (as defined in California Health and Safety Code, Chapter 6.6, and all regulations pursuant thereto and paragraph 1.5 below) which has not been rendered harmless, the Contractor shall immediately stop Work in that area affected and report the condition to BATA in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of BATA and Contractor if in fact the material is asbestos or polychlorinated biphenyl</i>

	<p>SC-13 Worker's Safety Provisions, Section 13.3, Page 56, cont'd.</p>	<p>(PCB) or other hazardous substance, or when it has been rendered harmless, by written agreement of BATA and the Contractor, or in accordance with a final determination by an Environmental Consultant employed by BATA.</p> <p>The Contractor shall not be required pursuant to GC- 9 to perform without consent any Work relating to asbestos, polychlorinated biphenyl (PCB) or other hazardous substance, <i>except for the known location of asbestos at the Richmond-San Rafael Toll Plaza.</i></p>
3. A	<p>SC-14, Hazardous Materials, Section 14.2, Removal of Asbestos and Hazardous Substances, Page 62</p>	<p><i>Asbestos is known to be present within the roofing material of the canopy at the Richmond-San Rafael Toll Plaza. The extent of the asbestos containing material has not been determined. An inspector licensed by the State of California shall inspect and sample the roofing materials for asbestos. The samples shall be analyzed by a qualified laboratory to determine the presence of asbestos. An asbestos report containing the laboratory results and construction recommendations shall be furnished to the Engineer for review and approval. The review period is 5 calendar days after receipt of a complete report. Contractor shall follow the recommendations of the asbestos report in performing the construction at this canopy. Such recommendations may include but are not limited to, use of a licensed asbestos removal contractor, an asbestos air monitoring contractor, 'burrito-wrapping' or otherwise enclosing the work area and waste generated, and any other items related to asbestos abatement, including compliance with all state, federal, and local requirements and compliance with Bay Area Air Quality Management District permitting requirements.</i></p> <p>When the presence of asbestos or hazardous substances are not shown on the plans or indicated in the specifications and the Contractor encounters materials which the Contractor reasonably believes to be asbestos or a hazardous substance as defined in Section 25916 and 25317 of California Code of Regulations, and the asbestos or hazardous substance has not been rendered harmless, the Contractor may continue work in unaffected areas reasonably believed to be safe. The Contractor shall immediately cease work in the affected area and report the condition to the Engineer in writing.</p> <p>In conformance with Section 25914.2 of the Health and Safety Code, removal of asbestos or hazardous substances including exploratory work to identify and determine the extent of the asbestos or hazardous substance will be performed by separate contract, <i>except for the known asbestos containing materials at the Richmond-San Rafael toll plaza canopy.</i></p>

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		<p>Pursuant to Section 25169.3 (e) of CH&SC, a DTSC certified waste hauler must transport hazardous waste to an appropriate waste disposal facility. Waste profiling and manifesting shall conform to the requirements in accordance with Health and Safety Code.</p> <p><i>Full compensation for asbestos inspection testing and report preparation at the Richmond San Rafael Bridge toll plaza canopy, including asbestos inspections, sampling, laboratory work, developing the asbestos report and construction recommendations, and furnishing all the labor, materials, tools, equipment, disposal of asbestos samples and incidentals and for doing all the work involved and for providing personal protective equipment, training and medical surveillance, as specified in these special conditions, and as directed by the Engineer shall be considered as included in the item price paid for Richmond-San Rafael Asbestos Inspection Testing and Report and no additional compensation shall be allowed therefor.</i></p> <p><i>The cost of work associated with implementing the asbestos report recommendations will be paid for as extra work as provided in GC-65, Change Requests and Change Notices, and GC-66, Change Orders.</i></p> <p>If delay of work in the area delays the current controlling operation, the delay will be considered a right of way delay and the Contractor will be compensated for the delay in conformance with the provisions in GC-32, Excusable Delays and Extension of Time.</p>
4.	10-1.12 MAINTAINING TRAFFIC, Page 174	<p>Before Chart No. 1: <i>Contractor will be permitted to close 1 booth at a time at any toll plaza between the hours of 10:00 AM and 2:00 PM, Monday through Friday. Permission will be subject to coordination with the BATA Lane Maintenance Contractor. BATA lane maintenance activities have priority. If there is a conflict with work schedules you will be required to reschedule your work.</i></p>
5.	SECTION 10-3 ELECTRICAL SYSTEMS, PROJECT DESCRIPTION AND SCOPE OF WORK, Page 197	<p>Paragraph 7: Where reference is made to the CMS Manufacturer, it shall mean the entity responsible for manufacturing and furnishing the CMS panels, CMS controllers and CMS communications cabling <i>through BATA</i>. The Contractor shall coordinate with BATA and work closely with the CMS Manufacturer (Vermac) for this project to pick-up, install, integrate and test the CMS panels, CMS communications cabling and CMS controllers to be made available by BATA to the Contractor which has already been procured by BATA for this project.</p>
6.	SECTION 10-3 ELECTRICAL	<p>Insert before Paragraph 2: <i>Removal of existing CMS controllers in existing CMS cabinets and replacing with, installing, integrating</i></p>

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	SYSTEMS, Contractor Scope of Work, Page 200	<i>and testing new CMS controllers provided by BATA as shown on the Plans. The Contractor shall work closely with the CMS Manufacturer for this work;</i>
7.	SECTION 10-3 ELECTRICAL SYSTEMS, Contractor Minimum Work Qualifications, Page 201	Paragraph 5: Attention is directed to SC-23 Progress Schedule. The schedule is a critical item on this project and the Contractor shall show how they propose to be able to successfully complete all work including all punch list items are complete and approved, all documentation and training are complete, and the system has been fully tested and is <i>fully</i> operational.
8.	SECTION 10-3 ELECTRICAL SYSTEMS, CODES AND STANDARDS, Page 202	Bullet 1: California Administrative Code, Title 24, Part 3, "Basic Electrical Regulations." <i>California Electrical Code (CEC)</i>
9.	SECTION 10-3 ELECTRICAL SYSTEMS, COST BREAKDOWN – BID PROPOSAL REQUIREMENTS, Page 204	The Contractor shall provide equipment and material cut-sheets for all the listed components at a minimum for review and approval prior to procurement and installation of said item. Nothing shall be ordered or installed until review and approval by the Engineer has been provided. The Contractor shall factor in a minimum of <i>five</i> (5) calendar days for review of each submittal package. This review time shall be included into their proposed project schedule.
10.	SECTION 10-3 ELECTRICAL SYSTEMS, COST BREAKDOWN – BID PROPOSAL REQUIREMENTS, Page 203	Paragraph 5, item 4: CMS Equipment Racks – Type 2 (small – fit under desk) and Type 3 (full size). Contractor shall provide F&I pricing for these components as specified herein and shown on the Plans.
11.	SECTION 10-3 ELECTRICAL SYSTEMS, ELECTRICAL SERVICE, Page 210	The Contractor shall furnish, install, terminate and test all CMS communications and electrical cabling for this project. Contractor shall provide new circuit breakers and modify existing panels as shown on the Plans. The design intent is for all CMS panels, and CMS cabinets and CMS equipment racks to be once this project is complete to be under Plaza UPS / Generator back-up power service. The Contractor shall furnish and installed electrical equipment <i>and materials</i> that meet the following minimum requirements: Conductors and Wiring shall conform to Section 86-2.08, "Conductors," Section 86-2.09, "Wiring," in the Standard Specifications and these Special Provisions.

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		<p>All power conductors shall be copper and rated 600 volt, Type THHN, 90 degree C.</p> <p><i>The minimum (smallest) electrical conductor size to be provided and installed on this project shall be No. 12 AWG or as shown on the Plans.</i></p> <p>Electrical shall meet the following requirements: Splices shall be insulated by "Method B".</p> <p>Heat shrinkable tubing will not be allowed.</p> <p>The minimum insulation thickness, at any point for Type USE, RHH or RHW wire shall be 1.0 mm for conductor sizes No. 12 to No. 10, inclusive, and 1.3 mm for No. 8 to No. 2, inclusive.</p> <p>The minimum insulation thickness, at any point, for Type THW and TW wires shall be 0.69 mm for conductor sizes No. 12 to No. 10, inclusive, 1.02 mm for No. 8, and 1.37 mm for No. 6 to No. 2, inclusive.</p> <p>Signal cable shall not be used.</p> <p>Circuit breakers shall be the cable-in/cable-out type, mounted on non-energized clips.</p> <p>Circuit breakers shall be mounted vertically with the up position of the handle being the "ON" position.</p> <p>Circuit breakers used as service disconnect shall have a minimum interrupting capacity of 42,000A, RMS, for 120/240VAC services.</p> <p><i>Provide 40 degree C ambient compensated circuit breakers.</i></p> <p><i>If an electrical panel-board utilized on this project is not grounded according to NEC and CEC the Contractor shall bring it up to Code. The Contractor shall bond the electrical panel-board and the conduits to the panel ground bar with #6 AWG conductor and the equipment ground conductor shall also be tied (or connected) to the panel's ground bar.</i></p> <p><i>In electrical panel-boards, the equipment grounding conductor shall not be connected to a terminal bar provided for grounded conductors (neutrals) unless the bar is identified for that purpose.</i></p> <p>New electrical panel shall meet all Caltrans standards and requirements as well as the NEC and meet the following requirements:</p>
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		<p>Panel spaces shall be equipped with provision for future circuit breakers.</p> <p>Enclosure shall be provided with stretcher leveled steel door and trim of code thickness, complete with concealed butt hinges.</p> <p>Provide combination spring catch and lock on inside edge of door trim.</p> <p>Hard drawn copper bus bars, minimum 98% conductivity silver or tin plated joints.</p> <p>Metal frame holder with clear plastic, transparent cover for schedule</p> <p>Provide 40 degree C ambient compensated circuit breakers.</p> <p>Finish inside and out with two coats of manufacturer's standard paint.</p> <p>Fiber optic, CMS serial control communications and jumper/patch cables are provided for elsewhere in these Special Provisions.</p>
12.	SECTION 10-3 ELECTRICAL SYSTEMS, BONDING, GROUNDING AND SURGE PROTECTION, Page 212	<p>Paragraph 10, bullet 5, item 1: Power: provide <i>electrical</i> TVSS at the <i>CMS</i> cabinets / <i>equipment racks</i> and CMS panel electrical panel for 120/240V, single phase, 3 wire plus ground that meets the following minimum requirements:</p>
13.	SECTION 10-3 ELECTRICAL SYSTEMS, BONDING, GROUNDING AND SURGE PROTECTION, Page 211	<p>Paragraph 10, bullet 9: All grounding and bonding shall be in accordance with NEC, CEC, NESC and ANSI/TIA/EIA-607 as applicable and/or required. The Contractor shall label grounding and bonding equipment and connections per ANSI/TIA/EIA-606A.</p>
14.	SECTION 10-3 ELECTRICAL SYSTEMS, LANE INDICATOR LIGHTS, Equipment Requirements, Page 215	<p>Paragraph 7: Terminal Blocks shall <i>meet the following requirements:</i></p> <p style="padding-left: 40px;">Mountable terminal blocks rated for a minimum of 5 amps</p> <p style="padding-left: 40px;"><i>Incorporate 0.375-inch, nominal, center spacing</i></p> <p style="padding-left: 40px;"><i>Number of positions as specified in the Plans</i></p>
15.	SECTION 10-3 ELECTRICAL SYSTEMS,	<p>The Contractor shall assemble the light Indicator <i>Light</i> Control system meeting the following requirements:</p> <p style="padding-left: 40px;">The Indicator Light Booth cable, Indicator Light Canopy cable</p>

	<p>LANE INDICATOR LIGHTS, Assembly and Installation Requirements, Page 216</p>	<p>and the Indicator Light Panel cable shall be terminated on wiring terminal blocks at the Indicator Light <i>drawers / sliding shelves, toll booth, toll canopy</i>, and at the Indicator Light Switch Console Panel.</p> <p><i>Indicator Light drawers / sliding shelves shall be installed in CMS cabinets and equipment racks as indicated on the Plans.</i></p> <p><i>Sliding drawers / shelves shall provide a platform and compartment for mounting of Indicator Light components as specified in this section.</i></p> <p>Cables coming into the Indicator Light Cabinet D drawer / sliding shelf shall be secured and secured in such a way to prevent any movement of the cables at the wiring terminal blocks. <i>Slack cabling shall be provided to allow for full extension of sliding drawer / shelf.</i></p> <p><i>Drilled holes for cable entry into drawer / sliding shelf shall be provided with rubber grommets or other approved materials to protect the cables from wear and damage over time.</i></p> <p><i>All relays, relay sockets, and terminal blocks as shown on the Plans shall be installed on the bottom of the Drawer / Sliding Shelf or as approved by the Engineer. All other components (i.e., LEDs, toggle switches, push-button breakers, etc.) shall be mounted on drawer / sliding shelf faceplate as shown on the Plans or as approved by Engineer.</i></p> <p>The Contractor shall submit for review and approval shop drawings of the Indicator Light <i>Drawer / Sliding Shelf</i>, Indicator Light Switch Console Panel, and the Toll Booth Indicator Switch LED Box. The shop drawings shall meet the following requirements:</p> <p style="padding-left: 40px;">Shall include layout drawings at scale that show:</p> <ol style="list-style-type: none"> a. Equipment labels (TB1, TB2, Relay 1, Relay 2 etc) b. Terminal block positions (i.e. 1, 2, etc) c. Wiring lines, with wire colors d. Switch location with switch terminations e. Relays locations with relay terminal locations f. LED light Lamps <i>(lamp)</i> locations with lamp terminations <p style="padding-left: 40px;">Shall include logical drawings that show:</p> <ol style="list-style-type: none"> a. All components (i.e. terminal blocks, relays, relay
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		<p>sockets, etc.)</p> <p>b. All connection with wire colors and terminal numbers</p> <p>All components installed at the bottom of the drawer / sliding shelf shall be labeled (i.e. terminal block relays, etc.)</p> <p>All components installed at the bottom of the drawer shall label all terminations.</p> <p>All drawers shall look the same and be wired the same for every CMS cabinet and equipment rack. The sliding drawer / shelf shall be standard rack mountable and 5.25 in (3 RU high) and x 10 in (min) to 12 in (max) (D).</p> <p>The drawer / shelf shall have telescoping guides to allow full extension from the cabinet / equipment rack.</p> <p>All drawers / sliding shelves shall look the same and be wired the same for every CMS cabinet and equipment rack.</p>
16.	SECTION 10-3 ELECTRICAL SYSTEMS, REMOVING AND SALVAGING EQUIPMENT, Page 217	Insert After Paragraph 3: <i>At the Richmond-San Rafael Bridge, as shown on the Plans, BATA IT personnel will remove existing equipment from an existing Equipment Rack to make it available for use on this project.</i>
17.	SECTION 10-3 ELECTRICAL SYSTEMS, CMS Communications Cable, Page 218	Serial cable shall be United Wire and Cable Co., Inc.; Consolidated Wire and Cable; or equivalent.
18.	SECTION 10-3 ELECTRICAL SYSTEMS, General Specifications, Page 221	<p>Type A cable shall include 36 single mode fibers.</p> <p><i>The Contractor shall provide Type D fiber optic cable containing 12 single mode fibers as shown on the Plans meeting the minimum requirements specified herein. Type A fiber optic cable containing 36 single mode fibers is not included on this project.</i></p> <p>All fiber optic cable on this project shall be from the same manufacturer, who is regularly engaged in the production of this material.</p> <p>The cable shall be qualified as compliant with RUS Federal Rule 7NTR1755.900.</p>
19.	SECTION 10-3 ELECTRICAL	In buffer tubes containing multiple fibers, e Each fiber shall be distinguishable from others in the same <i>buffer</i> tube by means of

	SYSTEMS, FIBER OPTIC CABLE AND EQUIPMENT, Color Coding, Page 222	color-coding according to the following:
20.	SECTION 10-3 ELECTRICAL SYSTEMS, FIBER OPTIC CABLE AND EQUIPMENT, Cable Construction, Page 223	Paragraph 1, bullet 1, item 4: Each Buffer tubes shall contain 12 strands of fiber, <i>typical</i>
21.	SECTION 10-3 ELECTRICAL SYSTEMS, FIBER OPTIC CABLE AND EQUIPMENT, Packaging and Shipping Requirements, Page 226	<p>A 20-foot section of fiber optic cable and documentation of compliance to the required specifications shall be submitted to the Engineer for approval prior to ordering the material.</p> <p>Attention is directed to "Fiber Optic Testing," elsewhere in these Special Provisions.</p> <p>The fiber optic completed cable shall be packaged for shipment on reels as required and The cable shall be wrapped in weather and temperature resistant covering. Both ends of the cable shall be sealed to prevent the ingress of moisture.</p> <p>Each end of the cable shall be securely fastened to the reel to prevent the cable from coming loose during transit. Fifteen (15) feet or <i>Fifteen (15)</i> meters of cable length on each end of the cable shall be accessible for testing.</p> <p>Cable delivery Each cable reel shall have a durable weatherproof label or tag showing the manufacturer's name, the cable type, the actual length of cable on the reel, the Contractor's name, and the Contract number, and the reel number. A shipping record shall also be included in a weatherproof envelope showing the above information and also include the date of manufacture, cable characteristics (size, attenuation, bandwidth, etc.), factory test results, cable identification number and any other pertinent information.</p> <p>The minimum hub diameter of the reel shall be at least thirty times the diameter of the cable. The fiber optic cable shall be in one continuous length per reel with no factory splices in the fiber. The minimum reel length shall be approximately 3.5 miles. Each reel shall be marked to indicate the direction the reel should be rolled to</p>

		<p>prevent loosening of the cable.</p> <p>Installation procedures and technical support information shall be furnished at the time of delivery.</p>
22.	SECTION 10-3 ELECTRICAL SYSTEMS, FIBER OPTIC CABLE AND EQUIPMENT, Labeling, Page 226	<p>Paragraph 2: Label identification, format and location of labels shall be <i>specified herein</i> and as <i>approved</i> directed by the Engineer.</p>
23.	SECTION 10-3 ELECTRICAL SYSTEMS, FIBER OPTIC CABLE AND EQUIPMENT, Fiber Optic Cable Terminations, Tight Buffer Cable, Jumpers and Pigtails, Page 229	<p>Paragraph 4: Connectors -- Shall be of the ceramic ferrule SC type <i>or as approved by the Engineer</i> for Single Mode Fiber Optic (SMFO). Indoor SC eConnector body housings shall be either nickel-plated zinc or glass reinforced polymer construction. SC eConnector body housing shall be glass reinforced polymer.</p> <p>The associated coupler shall be of the same material as the connector housing.</p> <p>All fiber optic connectors shall be the 2.5-mm connector ferrule type with Zirconia Ceramic material with a PC (Physical Contact) pre-radiused tip.</p> <p>The SC connector operating temperature range shall be -40°F to +158°F. Insertion loss shall not exceed 0.4 dB for single-mode, and the return reflection loss on single-mode connectors shall be at least -35 dB. Connection durability shall be less than a 0.2 dB change per 500 mating cycles per EIA-455-21A (FOTP-21). All terminations shall provide a minimum 222 N pull out strength. Factory test results shall be documented and submitted to the Engineer prior to installing any of the connectors. Single-mode connectors shall have a yellow color on the body or boot that renders them easily identifiable.</p> <p>Field terminations shall be limited to splicing of adjoining cable ends or cables to <i>connector SC</i> pigtails.</p> <p>All connectors shall be factory-installed and tested. There shall be no installation of connectors in the field.</p> <p>All unmated connectors shall have protective caps installed.</p> <p><i>Fiber Distribution Unit (FDU) / Fiber Patch Panels</i></p> <p><i>The Contractor shall furnish and install all components to terminate the incoming fiber optic communication cables.</i></p> <p><i>The Contractor shall furnish and install various types of FDU /</i></p>

		<p><i>fiber patch panels as shown on Plans and as directed by the Engineer to make various field element locations fully operational.</i></p> <p><i>The FDU shall be provided with:</i></p> <ul style="list-style-type: none"> <i>Splice trays</i> <i>Storage for splice trays</i> <i>A slide out metal drawer for the storage of spare jumpers</i> <p><i>The FDU shall be capable of being wall mounted and terminating up to 72 single-mode fibers.</i></p> <p><i>The FDU shall be hinged or have coupler plates to provide easy access and maintenance. Brackets shall be provided to spool the incoming fiber a minimum of two turns, each turn shall not be less than 12-inches, before separating out individual fibers to the splice tray.</i></p> <p><i>Strain relief shall be provided for the incoming fiber optic cable. Cable accesses shall have rubber grommets or similar material to prevent the cable from coming in contact with bare metal. All fibers shall be terminated and individually identified in the fiber terminal cabinet and on the patch panel.</i></p> <p><i>Fiber patch panels shall be rack mountable and terminate up to 12 single-mode fibers with SC type connector feed through couplers as shown on Plans. Blank rack panels shall be provided on unused rack space.</i></p> <p><i>Fiber patch panels shall be provided with radius guides and cable strain relief. Maintain optimal bend radius for cable slack whether patching or splicing at all times.</i></p> <p><i>Meet requirements of ANSI/TIA/EIA-568A and 606</i></p> <p><i>Fiber connectors shall be installed by or according to the supplied manufacturing instructions by certified fiber technicians.</i></p>
24.	SECTION 10-3 ELECTRICAL SYSTEMS, FIBER OPTIC CABLE AND EQUIPMENT, Fiber Optic Cable Testing, Page 230	<p>The Contractor shall provide comprehensive fiber optic cable testing which is in accordance with the Caltrans <i>Fiber Optic Communications System Design Guidelines</i>, latest version. The Contractor shall calculate and test fiber losses per the requirements in the Guidelines.</p> <p><i>All fiber strands installed and system performance shall be tested and documented on this project.</i></p> <p>All testing results shall be fully documented and submitted to the</p>

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		Engineer for review.
25.	SECTION 10-3 ELECTRICAL SYSTEMS, CMS COMMUNICATION S NETWORK EQUIPMENT, Installation Requirements, Page 232	Paragraph 1: All Ethernet switches shall be configured by the Contractor and set-up to operate in a ring type topology <i>as shown on the Plans</i> with STP/RSTP protocols.
26.	SECTION 10-3 ELECTRICAL SYSTEMS, POWER STRIP – IP ADDRESSABLE, Page 232	<p>The Contractor shall furnish and install Power Strips as shown on the Plans that meet the following minimum requirements:</p> <ul style="list-style-type: none"> Shall be rack mountable and be one rack-unit high Shall include a front mounted ON/OFF switch. Shall include a resettable 15 Amp breaker. Be mounted as shown in the Plans to a standard EIA-310 rack cage using four stainless steel EIA mounting screws, two on each side. Provide a minimum of <i>eight six (68)</i> NEMA 5-15R outlets. Outlets shall be rear-mounted. Not hinder the accessibility to the back of all other electrical equipment. Be remote manageable over the Ethernet network – single user interface. Include a 100 BASE-TX port. Be fully manageable and configure through the following remote protocols: <ul style="list-style-type: none"> SNMP RMON HTTP Capable of remotely turning ON/OFF each outlet <i>Capable of remote rebooting</i> Measure each outlet current <i>Provide alerts when power, temperature, and environments draws have exceeded defined parameters.</i> Contractor shall integrate the power strip into the Ethernet CMS communications network. All permanently field installed electrical equipment shall be

		<p>plugged into the power strip. All power cord lengths for equipment shall be sufficiently long enough to plug into the power strip.</p> <p><i>IP addressable power strips shall be appropriate for the proposed locations (tunnel environments) of operating temperatures ranging from 32 to 104 degrees F (minimum) and relative humidity of 5 to 90% non-condensing. Outdoor locations, as applicable, shall be capable of operating from 32 to 122 degrees F (minimum) and relative humidity of 5 to 90% non-condensing.</i></p>
27.	SECTION 10-3 ELECTRICAL SYSTEMS, WORKSTATION AND CMS SOFTWARE, Page 233	<p>Paragraph 1: For Antioch Bridge (only) as shown in the Plans, the Contractor shall furnish, install, integrate and test a new CMS Workstation that meets the following minimum requirements:</p> <p>CMS Workstation case shall be a slim-tower type.</p> <p><i>Contractor shall coordinate with the Toll Bridge Supervisor or Sergeant in regards to the final CMS Workstation location.</i></p> <p><i>CMS Workstation shall support CMS control, monitoring and diagnostic functions as specified herein.</i></p>
28.	SECTION 10-3 ELECTRICAL SYSTEMS, UNINTERRUPTIBLE POWER SUPPLY (UPS), Page 233	<p>For Antioch Bridge (only) as shown in the Plans, the Contractor shall furnish, install, integrate and test an UPS for the new CMS Workstation that meets the following minimum requirements:</p> <p>The Contractor shall provide a UL listed rack mount one (1) Uninterruptible Power Supply (UPS) as the back-up electrical power source for the CMS Workstation and all active electronic and network equipment located in the Equipment Rack as shown on the Plans.</p> <p>The Contractor shall calculate the UPS load requirements to provide equipment uptime for a minimum of 20 minutes upon loss of power. The Contractor shall submit calculations and proposed UPS units for review and approval by Engineer as specified herein.</p> <p>The UPS shall work over a voltage range of 82-144VAC.</p> <p>UPS shall incorporate a minimum of four (4) NEMA 5-15R output connections designed to accommodate a minimum of two (2) power transformers ("wall warts") or as required.</p> <p>UPS shall provide remote diagnostic/control software.</p> <p>The UPS shall include an automatic unattended shutdown feature to perform automated shutdown of all system workstations, servers and active equipment after a preset time on battery backup or at low battery.</p>

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		<p>UPS shall provide transient voltage protection to loads connected to the UPS with a surge rating of at least 320 joules. UPS shall provide full time multi pole noise filtering: 0.3 percent of less IEEE surge let through zero clamping response and shall meet UL 1449.</p> <p>UPS shall be FCC Class B certified.</p> <p>If UPS is a switching type (not 100 percent on line), transfer time shall be 4 millisecond or less.</p> <p>Batteries shall be sealed, non-outgassing type.</p>
29.	SECTION 10-3 ELECTRICAL SYSTEMS, CMS CABINET, Page 234	<p>Paragraphs 10 through 17: All CMS cabinet equipment as well as the fiber patch (connector) panel and terminal blocks (for indicator light cables) shall be rack mounted in drawers / <i>sliding shelves</i> as shown on the Plans. No equipment shall be mounted on a rack mounted shelf. All equipment mounting and cabling inside shall be neat and organized – no equipment shall be laying loose at the bottom of the cabinet or unused;</p> <p>All components (surge protectors, breakers, relays, etc.) and equipment shall be utilized and active.</p> <p>Self-grounding rack angles shall meet ANSI, NEC, and BISCII grounding requirements. The Contractor shall ensure that the cabinet is grounded according to code and industry practice and as specified herein.</p> <p>Provide cable tie down slots within cabinet to facilitate cable management.</p> <p>The CMS cabinet shall contain a electrical panel and circuit breakers that meet the following minimum requirements and as shown in the Plans:</p> <p>Short circuit ratings of 22,000 amps and 10,000 amps for the main and branch (sub) circuits, respectively</p> <p>UL listed</p> <p>The CMS cabinet electrical panel shall contain a utility GFI outlet circuit consisting of a minimum of one (1) 15-A NEMA 15-R, 120VAC duplex outlet, with ground-fault circuit interrupters.</p> <p>The CMS cabinet electrical panel shall protect the electronic equipment powered by the panel from power transients. Over voltage protection shall be provided for the electrical panel and shall contain a TVSS device as specified herein, which shall reduce the effect of power line voltage transients and be rated</p>

		<p>as follows:</p> <p>Recurrent peak voltage of 212 V.</p> <p>Energy rating (maximum) of 50 J.</p> <p>Power dissipation, average of 0.85 W.</p> <p>Peak current for pulses less than 6 μs at 2,000 A.</p> <p>Standby current for 60 Hz sinusoidal at 1mA or less.</p> <p>The CMS cabinet shall include one (1) earth ground lug that is electrically bonded to the cabinet. The lug shall be installed near the power entrance. The Contractor shall provide the balance of materials and services needed to properly earth ground the CMS panel to an earth ground system as shown on the Plans. All grounding shall conform to the NEC and Caltrans <i>electrical (CEC)</i> requirements.</p>
30.	<p>SECTION 10-3 ELECTRICAL SYSTEMS, EQUIPMENT RACK, Page 236</p>	<p>TYPE 2 EQUIPMENT RACK</p> <p>The Contractor shall furnish and install equipment rack as shown on the Plans meeting the following minimum requirements:</p> <p>Provide one (1) EIA compliant 19-inch under desk equipment rack with overall dimensions of approximately 25-inch high x 20-inch wide x 20-inch deep.</p> <p>Provide a rack with 12 useable rack units with 10 32 mounting holes in EIA spacing that will fit under a 24-inch height (bottom side) modular desktop.</p> <p>All equipment shall be rack mounted.</p> <p>Provide all necessary hardware for mounting of equipment (i.e., all rack hardware including screws, cable management, etc.).</p> <p>Minimum weight capacity of 200lbs.</p> <p>Rear mounted, 15-amp, eight (8) outlet (minimum) power strip rigid standoff brackets. Power strip shall accommodate equipment power supplies. Power strip cord shall be SJ or approved equivalent and shall be equipped with a twist-lock plug to match the equipment rack receptacle.</p> <p>Power surge and over current protection on all outlets shall be provided through the power strip or the UPS.</p> <p>U.L listed in the U.S.</p> <p>Product: Acceptable product by Middle Atlantic Products, Raxxess or approved equivalent.</p>

31.	SECTION 10-3 ELECTRICAL SYSTEMS, EQUIPMENT RACK, Type 3 Equipment Rack, Page 237	Item 15: Provide a sliding drawer / shelf for Indicator Light components as specified herein and shown on the Plans. that is an aluminum storage compartment mounted in each frame with the approximate following dimensions: 1.75 in (H) x 16 in (W) x 14 in (D). Ensure the compartment has telescoping drawer guides to allow full extension from the equipment frame upright channels. When extended, the storage compartment shall open to provide storage space for documentation and other miscellaneous items. The sliding drawer/storage compartment shall be of adequate construction to support a weight of 25lb when extended. The top of the storage compartment shall have a non-slip plastic laminate attached which covers a minimum of 90% of the surface area of the top.
32.	SECTION 10-3 ELECTRICAL SYSTEMS, SYSTEM TESTING, Page 238	The Contractor shall work closely with the CMS Manufacturer, and BATA Toll Operations <i>as required</i> , to provide complete CMS and Indicator Light Control System testing to meet these specifications.
	SECTION 10-3 ELECTRICAL SYSTEMS, SYSTEM TESTING, Pre-Installation Tests (PIT), Page 239	Paragraph 1: Pre-Installation Tests (PIT) will include testing by the CMS Manufacturer of the CMS panels as part of this Contract, associated CMS controllers and materials, equipment, and cables at the CMS Manufacturer (BATA) storage location within 25 miles of the project site provided under another contract. The PIT will ensure the equipment will power up, operate, and was not damaged during shipment. The Engineer reserves the right to attend any PIT as desired; however, the Contractor shall observe the test and shall submit documentation of the PITs whether the Engineer's representative is present or not.
33.	SECTION 10-3 ELECTRICAL SYSTEMS, SYSTEM TESTING, Conditional System Acceptance Tests (CAT), Page 239	Paragraph 4 through 6: CMS data link testing demonstrating complete control of all CMS panels and CMS controllers at the site from the CMS Workstation shall be conducted as part of these tests. The activities shall include verification of each CMS data circuit in the low speed data links, and in the integrated data network. The Contractor shall optimize network configuration parameters for the data system to operate. The Indicator Light Control System shall be fully tested during this testing period. Operational tests shall be conducted during opening and closing of toll lanes coordinated closely with the Toll sergeant and/or Lieutenant. The system shall demonstrate that when the barrier gate arm is lowered / down the CMS message for that toll lane automatically displays "Lane Closed" with the RED light on. Red LEDs at the Switch Console, CMS cabinet, as well as that toll booth should be lit. Once the barrier gate arm is raised (up) the tests shall demonstrate complete control of the Indicator Lights for that toll lane. Each toll lane shall be fully tested.

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		Indicator light tests shall be provided by the Contractor to demonstrate and test each of the states in the Indicator Light State Diagram in Section 10-3.09 of these Special Provisions. <i>Full operational capabilities shall be demonstrated in the tests including control and monitoring from the Sergeant's Switch Console, Toll Booth and CMS cabinet / equipment rack Indicator Light drawer / sliding shelf.</i>
34.	SECTION 10-3 ELECTRICAL SYSTEMS, SYSTEM TESTING, Final Inspection, Page 240	<p>From Paragraph 2 on: All installed infrastructure (conduit, junction boxes, CMS cabinets <i>and equipment racks</i>, etc. in support of the CMS System and Indicator Light Control System shall be field inspected and a final field punch list generated.</p> <p>Monitoring of all CMS System functions including other <i>existing</i> CMSs on the network at the Toll Plaza Building to demonstrate the overall CMS System is operational.</p> <p>Monitoring of all Indicator Light Control System functions including control of each toll lane Indicator Light, feedback of light status at each <i>toll</i> booth and Switch Console Panel, control features and functions of the Switch Console Panel in the Sergeant's Room <i>and Toll Booth</i> to demonstrate the overall Indicator Light Control System is operational.</p> <p>All CMS and Indicator Light Control System components are in their correct final configuration.</p> <p>Verification that all burn-in punch list items have been completed.</p> <p>Verification that all final cleanup requirements have been completed.</p> <p>Approval of final CMS System and Indicator Light Control system as-built documentation.</p> <p><i>Verification that all spare parts has been delivered.</i></p>
35.	SECTION 10-3 ELECTRICAL SYSTEMS, PROJECT DOCUMENTATION, Catalog Cut Sheets, Page 242	Item 2: Equipment and materials shall not be ordered or released for fabrication without the approval of <i>equipment and material</i> submittals by the Engineer.
36.	SECTION 10-3 ELECTRICAL SYSTEMS, PROJECT DOCUMENTATION,	Paragraph 1, Item 1: As-built drawings shall at a minimum include; detailed conduit routing, junction box locations, CMS cabinet / <i>equipment rack</i> location, details of cabinet layout and equipment installation and assemblies, grounding details, electrical panel location and modifications, CMS and Indicator Light Control

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	As Built Plans, Page 243	system and communications network, a list of all materials, components and cabling installed.
37.	SECTION 10-3 ELECTRICAL SYSTEMS, MAINTAINING EXISTING ITS AND TOLL SYSTEM ELEMENTS DURING CONSTRUCTION, Page 243	Paragraph 2: Before work is performed, the Engineer, the Contractor, BATA Toll <i>Operations</i> , <i>BATA IT</i> and Caltrans representatives shall jointly conduct a pre-construction operational status check of all existing electrical and CMS subsystems and Toll elements and each element's communication status with the Caltrans Traffic Management Center (TMC) and/or the respective BATA Plaza Building, including existing ITS/Toll elements that are not shown on the Plans and elements that may be impacted by the Contractor's activities.
38.	Appendix A E Sheets	<p>The following sheets are revised, as shown in Attachment 2:</p> <p>Antioch: 11 sheets E-1 – Sheet 17 of 123 E-2 – Sheet 18 of 123 E-3 – Sheet 19 of 123 E-4 – Sheet 20 of 123 E-5 – Sheet 21 of 123 E-7 – Sheet 23 of 123 E-8 – Sheet 24 of 123 E-10 – Sheet 26 of 123 E-11 – Sheet 27 of 123 E-13 – Sheet 29 of 123 E-16 – Sheet 32 of 123</p> <p>Carquinez: 6 sheets E-1 – Sheet 34 of 123 E-5 – Sheet 38 of 123 E-10 – Sheet 43 of 123 E-15 – Sheet 48 of 123 E-16 – Sheet 49 of 123 E-19 – Sheet 52 of 123</p> <p>Dumbarton: 6 sheets E-1 – Sheet 56 of 123 E-2 – Sheet 57 of 123 E-6 – Sheet 61 of 123 E-11 – Sheet 66 of 123 E-12 – Sheet 67 of 123 E-15 – Sheet 70 of 123</p> <p>Richmond-San Rafael: 12 sheets E-1 – Sheet 74 of 123 E-2 – Sheet 75 of 123</p>

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		<p>E-3 – Sheet 76 of 123 E-4 – Sheet 77 of 123 E-7 – Sheet 80 of 123 E-8 – Sheet 81 of 123 E-9 – Sheet 82 of 123 E-10 – Sheet 83 of 123 E-11 – Sheet 84 of 123 E-13 – Sheet 86 of 123 E-14 – Sheet 87 of 123 E-17 – Sheet 90 of 123</p> <p>San Francisco-Oakland: 1 sheet S-1 – Sheet 91 of 123</p> <p>San Mateo-Hayward: 7 sheets E-1 – Sheet 104 of 123 E-2 – Sheet 105 of 123 E-7 – Sheet 110 of 123 E-8 – Sheet 111 of 123 E-16 – Sheet 119 of 123 E-17 – Sheet 120 of 123 E-20 – Sheet 123 of 123</p>
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The remaining provisions of the IFB, dated March 15, 2010, as amended on March 18, 2010, remain unchanged. In the event of a conflict between this addendum and the previous version(s), this addendum shall take precedence.

Any questions concerning this addendum to the IFB should be directed to Stephen Baker, Project Manager, at (510) 817- 5892 or sbaker@mtc.ca.gov.

Sincerely,



Ann Flemer

Deputy Executive Director

AF: SB

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ATTACHMENT 1
SCHEDULE OF QUANTITIES AND PRICES (Revised, Addendum 2)
CONTRACT NO. BATA-0006
EA 04-TBD

Toll Plazas Improvements - Changeable Message Sign (CMS) Installation Project

The prices quoted below include all applicable taxes, fees, permits, delivery and other charges as required.

Item No.	Item Description	Unit	Estimated Quantity	Item Price	Project Total
1	Traffic Control System	LS			
2	Health and Safety Plan	LS			
3	Electrical Systems Antioch	LS			
4	Install CMS On Existing Structure Antioch	LS			
5	Electrical Systems Carquinez	LS			
6	Install CMS Panels On Existing Structure Carquinez	LS			
7	Electrical Systems Dumbarton	LS			
8	Install CMS On Existing Structure Dumbarton	LS			
9	Electrical Systems Richmond-San Rafael	LS			
10	Install CMS On Existing Structures Richmond-San Rafael	LS			
11	Electrical Systems San Francisco-Oakland	LS			
12	Install CMS On Existing Structure San Francisco-Oakland	LS			
13	Electrical Systems San Mateo-Hayward	LS			
14	Install CMS On Existing Structure San Mateo-Hayward	LS			
15	Mobilization	LS			
16	<i>Richmond-San Rafael Asbestos Inspection Testing and Report</i>	<i>LS</i>			
CONTRACT PRICE					

Contractor shall submit in a sealed envelope the COST BREAKDOWN as specified in Section 10-3 "Electrical Systems" and Section 86.103 "Cost Breakdown" of the Standard Specifications. The COST BREAKDOWN of the successful contractor will be opened after NOA.